



**2004 FISH TISSUE AND SEDIMENT
MONITORING PLAN
WATER QUALITY STANDARDS & BIOLOGICAL
PROGRAMS**



May 11, 2004

Introduction

The Virginia Department of Environmental Quality (DEQ), Water Quality Standards and Biological Monitoring Programs, Central Office of Water Quality Programs is responsible for the design and execution of the Statewide Fish Tissue and Sediment Monitoring Program. This document provides information concerning the proposed stations for monitoring fish tissue and sediment during 2004 and the rationale for the station selection.

Objective

The objective of the Statewide Fish Tissue and Sediment Monitoring Program is to systematically assess and evaluate, using a multi-tier screening, waterbodies of Virginia in order to identify toxic contaminant(s) accumulation with the potential to adversely affect human users of the resource. A second objective of the program is to determine the presence of toxic chemical contaminants in the aquatic environment which have the potential to adversely effect the aquatic biological community. Data collected will be used to quantify human health risks and ecological/environmental health conditions. In addition, follow-up studies are conducted when problems are found and/or when recommended by the Virginia Department of Health (VDH) through a Memorandum of Agreement between VDH and DEQ. VDH uses data generated by this program to assess the need for issuing or modifying fish consumption advisories. The DEQ employs the data to assess water quality for 305(b) Report /303(d) Listing and Total Maximum Daily Load (TMDL) determinations.

Sampling Design

The water bodies of Virginia are separated into fourteen river basins or subbasins (see Table 1). In the past, fish tissue and sediment were sampled in all fourteen of the river basins within a five-year cycle following procedures stated in the DEQ Quality Assurance/Quality Control Project Plan for the Fish Tissue and Sediment Monitoring Program (1998). In April 2000, the General Assembly amended section 62.1-44.19:5 of the code of Virginia which instructed the DEQ to sample all of the river basins within a three-year rotational cycle contingent upon available funding.

Due to funding and staff reductions, only two river basins have been selected for the 2004 routine sampling season: the New River Basin (last sampled in rotation 2000), and the Potomac River Subbasin (last sampled in rotation in 2001).

Table 1. River Basins in Virginia

Basin Code

1) Potomac River Subbasin	1A
2) Potomac River-Shenandoah River Subbasin	1B
3) James River	2-
4) Rappahannock River	3-
5) Roanoke River	4A
6) Yadkin River	4B
7) Chowan-Chowan River Subbasin	5A
8) Chowan-Albemarle Sound Subbasin	5B
9) Tennessee and Big Sandy River-Big Sandy Subbasin	6A
10) Tennessee and Big Sandy River-Clinch Subbasin	6B
11) Tennessee and Big Sandy River-Holston Subbasin	6C
12) Chesapeake Bay, Atlantic Ocean, and Small Coastal	7-
13) York River	8-
14) New River	9-

In addition to the “routine” sample stations located in the New and Potomac River Basins, the sample station list includes a host of special Virginia Environmental Emergency Response Fund (VEERF) study sites (see Table 3). The VEERF study sites include: 9 stations in Beaver Creek Drainage, Washington County in southwest Virginia; 8 stations in Knox Creek Drainage, Buchanan County in southwest Virginia; 17 stations in Smith Mountain Lake; 9 stations in the Blackwater River Drainage in eastern Virginia; 7 stations in Dragon Swamp in eastern Virginia; and 7 stations in the Great Dismal Swamp. In addition to the VEERF study sites, 5 special request stations will be sampled. These include 1 station at Lake Montclair in the Potomac River Basin requested by a citizens group, 3 stations requested by the US Fish & Wildlife Service in the Roanoke River in the vicinity of Roanoke and 2 stations requested by the DEQ-PRO in an unnamed tributary to the James River near the mouth of the Appomattox River. Three Kepone monitoring stations will also be sampled in the James River. A total of 108 fish tissue and sediment sampling stations have been selected.

The sample station list includes the routine monitoring stations, the VEERF special studies, special request and Kepone monitoring stations. All of the sample sites are ranked from 1 to 2 with 1 being the highest priority and 2 the lower priority. A higher rank is based on known or potential water quality problems at the sample location, special requests by other DEQ units, VDH or citizen groups, and/or if the sample location is a relatively intensive resource for recreational or commercial fishing. Extensive effort will be made to complete all of the stations selected, but if equipment problems and/or severe weather impact(s) the sampling schedule, or if there are unanticipated budget reductions, priority will be given to higher ranked stations.

Most of the sample sites are freshwater; however, several are brackish or saltwater locations. The samples that will be collected at each freshwater station include one sediment sample and three to five tissue composite samples (5-10 individuals of the same species per composite) consisting of fish species that are typically consumed by humans. Samples will include at least one bottom feeder (e.g. catfish sp.), which may be highly exposed to chemically contaminated sediments compared to other species, and two to four upper and middle trophic level feeders (e.g. bass and sunfish species, respectively.), which may be exposed to chemical contaminants via biomagnification.

Collection of targeted species for tissue analysis at the brackish and saltwater sites may be problematic since only 10-15% of the fish and shellfish species at the stations are year-round residents and few of the resident species are typically consumed by humans (Murphy et. al. 1997). It is likely that sample collection techniques will yield several species of migratory fish and shellfish that are consumed by humans and a few resident fish species that are not consumed by humans. Contaminants found in migratory fishes may not reflect local pollution problems but may be used to calculate human health risks from consumption. Contaminants found in sediment and resident fishes may be used to identify local inputs of bioaccumulative contaminants. Therefore, the samples that will be collected at each brackish or saltwater station include one sediment sample and three to five composite samples (5-10 individuals of the same species per composite) consisting of an edible migratory, an edible or non-edible resident, and an edible or non-edible bottom species. For a detailed list of species that will be targeted at each brackish or saltwater station (see Table 2).

The entire data set should help determine if any unacceptable human health risks are associated with fish consumption, and if local inputs of bioaccumulative contaminants are in tissue and/or sediment at levels of concern. Samples collected will be analyzed for metal and/or organic contaminants by the College of William and Mary - Virginia Institute of Marine Science.

Station Selection Criteria

The stations in each basin have been selected to produce site specific conclusions and provide spatial coverage of the entire basin. The following criteria were used to select the 2004 sampling stations:

- Historical Data Review
- Spatial Distribution
- Specific Water Quality Problems
- Major Tributary Status
- External Request from other VADEQ offices, State Agencies, and Citizen Groups

- Point Source
- Nonpoint Source
- Major Fishery

The attached references were used in selecting the sampling stations. The water body ID number, station number, priority rank, river mile, latitude, longitude, county, criteria for selection, and corresponding USGS topographical survey map name for each proposed sampling station are provided (see Table 3). Summary maps showing the locations of all of the proposed sample stations are attached (see figure1-9).

Sample Collection and Reporting

Fish tissue and sediment samples will be collected in the early spring through late fall, 2004. Analytical data for all of the samples should be received from the laboratory by June 2005. The data will be tabulated as received and sent to VDH per an October 2000 Memorandum of Agreement between the VDH and DEQ. VDH will make an evaluation regarding potential human health impacts due to contaminated fish consumption and issue fish consumption advisories or bans as needed. DEQ will assess the data in the next 305(b) assessment cycle.

The tabulated data will also be sent to the water quality monitoring managers for 305(B) reporting and review and posted on the DEQ web site at:

<http://www.deq.virginia.gov/fishtissue/>

Table 2. Target species at each of the brackish water or saltwater stations.

Migratory Fish (Normally consumed by humans)	Resident Fish (Some may not be consumed by humans)	Benthic Fish/Shellfish (Some may not be consumed by humans)
Striped Bass	White Perch	Oyster spp.
Spot	Yellow Perch	Clam spp.
Atlantic Croaker	Killifish, Banded	Blue Crab
Weak Fish	Killifish, Striped	Summer Flounder
Black Sea Bass	Killifish,Rainwater	Smallmouth Flounder
Spotted Seatrout	Killifish, Marsh	Oyster Toadfish
Black Drum	Killifish, Spotfin	Hogchoker
Red Drum	Mummichogs	Tongue Fish
Silver Perch	Sheepshead Minnow	Channel Catfish
Northern Kingfish	Silverside, Inland	White Catfish
Southern Kingfish	Silverside, Rough	
Gulf Kingfish	Silverside, Atlantic	
Bluefish	Bay Anchovy	

Table 3 2004 Fish Tissue and Sediment Monitoring Stations

WBID	Site #	Priority	Rivermile	Station	Latitude	Longitude	Topo Quad Name	Problem	Reference
Potomac River Basin									
N-A15R	1	2	1AACO004.86	Accotink Creek near Rt. 611	N38 43.200'	W77 11.754'	FORT BELVOIR	Heptachlor Epoxide, PCBs, & Hg in tissue, Benthics Moderately Impaired	2001 Historical Data, 2002 305B Appendix B, Tingler Bull 583 1990 p.O2-8
N-A09R	2	2	1ABRB002.15	Broad Run near Rt. 7 bridge	N39 02.801'	W77 25.962'	STERLING	Be, Hg, PCBs, Heptachlor epoxide	2001 Historical Data, Tingler Bull 583 1990 p.M2-5
N-A19R	3	1	1ABRU002.96	Broad Run downstream of Manassas Airport	N38 42.068	W77 30.242'	NOKESVILLE	VDGIF Request-Citizens Reported Fish With Tumors	DGIF Letter Request
N-A23R	4	1	1ABUL006.47	Bull Run near Popes Head Creek	N38 46.319'	W77 24.823'	MANASSAS	PCBs in Sediment	1997 Historical Data, 2002 305B Report appendix B, 1996 303 D
N-A23R	5	1	1ABUL010.28	Bull Run near Rt. 28 bridge	N38 48.183'	W77 26.983'	MANASSAS	Hg, Cr, PCBs in Tissue	2001 Historical Data, 1996 303 D, 1990 305B Report p. 8-35,
N-A23R	6	1	1ABUL013.40	Bull Run near Bull Run Recreation Area	N38 47.931'	W77 29.664'	MANASSAS	Spatial Distribution	NRO Request
N-A34E	7	1	1ACOA004.24	Coan River near Coan, Va	N37 57.444'	W76 28.953'	HEATHSVILLE	Heptachlor Epoxide, PCBs in tissue	2001 Historical Data, Tingler Bull 583 1990 p.O2-8
N-A22R	8	1	1ACUB002.61	Cub Run Rt. 658 Compton Road	N38 49.268'	W77 27.956'	MANASSAS	Spatial Distribution	NRO Request
N-A11R	9	2	1ADIF000.86	Difficult Run near Rt. 193	N38 58.555'	W77 14.763'	FALLS CHURCH	Hg, PCBs, Heptachlor, Benthics Moderately Impaired	2001 Historical Data, Tingler Bull 583, 1990, p.M3-24,
N-A08R	10	2	1AGOO002.38	Goose Creek near Rt. 7	N39 05.133'	W77 30.683'	LEESBURG	Hg, PCBs in Tissue	2001 Historical Data, Tingler Bull 583, 1990, p.O4-16,
N-A13R	11	1	1AINA000.88	Indian Run	N38 48.407'	W77 09.546'	ANNANDALE	Mercury In Water Column, Spatial Site	Internal Request
P-A31E	12	1	1AMON002.49	Monroe Creek	N38 14.974'	W76 58.122'	COLONIAL BEACH	Hg, PCBs in Tissue	2001 Historical Data, Tingler Bull 583 1990 p.M3-23
N-A25E	13	1	1AOCC002.47	Occoquan/Belmont bay near Buoy # 6	N38 38.343'	W77 13.181'	FORT BELVOIR	Be, Hg, PCBs, Pb	2001 & 1996 Historical Data, Tingler Bull 583, 1990, p.M2-25, M3-23
N-A12R	14	1	1APIM000.15	Pimmit Run near Rt. 120 bridge	N38 55.740'	W77 07.108'	WASHINGTON WEST	As, Cu, Cr, Zn, PCBs, Hg	2001 Historical Data, 1988 305 B Report p. 6-35, Citizens Monitoring Fair-Poor Rating
N-A26R	15	1	1APOW009.08	Lake Montclair (Powells Creek)	N38 37.067'	W77 21.326'	QUANTICO	Citizens Request, Spatial Site	Letter Request

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WBID	Site #	Priority	Rivermile	Station	Latitude	Longitude	Topo Quad Name	Problem	Reference
N-A19R	16	1	1ASOT001.44	South Run near Rt. 215 bridge	N38 45.300'	W77 40.434'	THOROUGHFARE GAP	Chlordane,Cu,Hg, As elevated in Redbreast Sunfish	2001 Historical Data, Tingler Bull 583, 1990,p.O2-8, M6-27,I-13,M3-16
N-A30E	17	1	1AUMC004.43	Upper Machodoc Creek near Rt. 218 bridge	N38 17.320'	W77 03.556'	DAHLGREN	Cd, Hg elevated in tissue (spot)	2001 Historical Data, Tingler Bull 583, 1990, p.M5-19
N-A30B	18	1	1AUMC001.36	Upper Machodoc Creek near Williams Creek	N38 19.250'	W77 3.133'	DAHLGREN	Spatial Distribution	NRO Request
V-B41R	19	1	1BHPY003.06	Happy Creek	N38 54.346'	W78 11.140'	FRONT ROYAL	Waste Request	Landfill

New River Basin

S-N07R	20	1	9-CRK003.00	Crooked Creek near Rt. 635	N36 46.117'	W80 54.467'	AUSTINVILLE	PCBs, SWRO Request	Regional Office Request, 2002 305 B Report Appendix B
S-N06R	21	2	9-CST009.27	Chestnut Creek near Rt. 728	N36 41.732'	W80 54.946'	GALAX	Spatial Distribution Downstream of Galax STP	Spatial Distribution
W-N20R	22	2	9-DDD002.62	Dodd Creek near Rt. 696 bridge	N36 55.171'	W80 20.723'	FLOYD	Cr, Fecals	Spatial Distribution, 2002 305 B Report Appendix B, 305B 1990 (page 16-16) 303D 1996 (page II-14) 303D 1998 (page I-21)
S-N15R	23	1	9-LRI001.62	Little Reed Island Creek low water bridge downstream Wythe County line	N36 55.297'	W80 45.574'	FOSTERS FALLS	Zn, SWRO Request	Regional Office Request
S-N37R	24	1	9-LRR001.39	Laurel Fork	N37 18.671'	W81 20.119'	BRAMWELL	Pb, Zn, Be, Cd, Cr, Cu, Ni, Th,	2000 Historical Data, Pb detected in 1 species, 2002 305 B Report Appendix B, TINGLER 1990 (page M3-21), 303D 1996 (page I-138), 1998 303D (page I-21),
S-N04R	25	1	9-LVR001.34	Little River near Rt. 626	N36 35.513'	W81 02.965'	SPARTA EAST	Ni, SWRO Request	Regional Office Request
W-N22	26	1	9-NEW075.53	New River near Rt. 114 bridge	N37 09.700'	W80 33.139'	RADFORD NORTH	PCBs-VDH Fish Advisory	Spatial Distribution
W-N18R	27	1	9-NEW077.50	New River downstream of Radford University	N37 08.538'	W80 32.567'	RADFORD NORTH	PCBs-VDH Fish Advisory	PCB-VDH Fish Advisory, 2000 Historical Data, 2002 305B Report Appendix B

Table 3 2004 Fish Tissue and Sediment Monitoring Stations

WBID	Site #	Priority	Rivermile	Station	Latitude	Longitude	Topo Quad Name	Problem	Reference
W-N18R	28	1	9-NEW085.94	New River downstream Claytor Dam	N37 05.270'	W80 34.770'	RADFORD SOUTH	PCBs	2001 Historical Data, Spatial Distribution
W-N16L	29	1	9-NEW088.86	New River near Claytor Lake Dam	N37 04.468'	W80 35.272'	RADFORD SOUTH	As,Pb, Cd, & PCBs Major Fishery	2000 Historical Data, 2002 305B Report Appendix B, TINGLER 1990 (page M1-26, M4-16)
W-N16R	30	1	9-NEW105.05	New River Claytor Lake near Hiwassee	N36 57.736'	W80 43.144'	HIWASSEE	Cd, PCBs	Spatial Distribution, TINGLER 1990 (page M5-25)
S-N08R	31	1	9-NEW117.47	New River near Shot Tower State Park	N36 53.877'	W80 51.654'	FOSTERS FALLS	SWRO Request Pb, Zn in Sediment	1997 Historical Data, 2002 305B Report Appendix B, Regional Office Request
S-N04R	32	1	9-NEW158.40	New River near Rt. 58 bridge	N36 36.841'	W81 02.815'	SPARTA EAST	Spatial Distribution, Hg in Tissue	Spatial Distribution, 2002 Historical data
S-N04R	33	1	9-NEW171.94	New River near Rt. 24	N36 34.486'	W81 09.308'	SPARTA WEST	Spatial Distribution, Hg in Tissue	VDH Request
S-N04R	34	1	9-NEW176.85	New River near Rt. 93 bridge	N36 35.119'	W81 18.836'	MOUTH OF WILSON	Spatial Distribution, Hg in Tissue	Spatial Distribution, 2002 Historical Data
W-N16L	35	1	9-PKC004.65	Peak Creek	N37 02.883'	W80 42.457'	DUBLIN	Hg, Pb,Cd,Cu,Zn, PCBs	2000 Historical Data, 2002 305B Report Appendix B Partially Supporting, TINGLER 1990 (page M3-20, M4-16, M5-25, M6-14) 305B 1990, 303D 1996 (page I-132, II-14) 303D 1998 (page I-21)
W-N16L	36	1	9-PKC007.82	Peak Creek near Rt. 99 bridge	N37 02.518'	W80 44.496'	DUBLIN	Hg, Pb,Cd,Cu,Se, PCBs	2000 Historical Data, 2002 305B Report Appendix B, 305B 1990, 305B 1992 (page 6.10-12), 303D 1996 (page II-14), 303D 1998 (page I-21)
S-N11R	37	1	9-RDC009.00	Reed Creek near Rt. 619 Grahams Forge	N36 56.359'	W80 53.219'	MAX MEADOWS	PCBs, Hg, SWRO Request PCBs	2000 Historical Data, 2002 305B Report Appendix B Threatened, Tingler 1990, M3-20, SWRO Request
S-N14R	38	1	9-RIC000.50	Reed Island Creek	N36 55.626'	W80 44.811'	HIWASSEE	Hg, Pb	2000 Historical Data, 2002 305B Report Appendix B Pb detected in 1 species, Tingler 1990, M3-20, SWRO Request, TINGLER 1990, M3-21

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WBID	Site #	Priority	Rivermile	Station	Latitude	Longitude	Topo Quad Name	Problem	Reference
W-N28R	39	1	9-SNC000.20	Stoney Creek near Norcross	N37 11.086'	W80 41.829'	PEARISBURG	PCBs	2000 Historical Data
W-N25R	40	1	9-WLK008.22	Walker Creek at Gaging Station	N37 16.158'	W80 42.524'	PEARISBURG	PCBs	Potential PCB Source nearby
W-N32R	41	2	9-WFC003.69	Wolf Creek near Rt. 724 bridge	N37 18.362'	W80 50.992'	NARROWS	PAHs & Pb IN Sediment	2000 Historical Data, 2002 305B Report Appendix B-Bio OK, 305B 1990, 16-17

Smith Mountain Lake (SML) VEERF Stations and USF&W Roanoke River Special Request Stations

W-L07R	42	1	4ABDA002.27	SML-Beaverdam Creek near Rt.757	N37 12.848'	W79 44.986'	HARDY	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	43	1	4ABKY002.09	SML-Beckys Creek near Beckys Creek DRiver	N37 06.211'	W79 40.789'	MONETA	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	44	1	4ABSA003.77	SML-Bull Run near Rt. 647	N36 59.778'	W79 39.481'	PENHOOK	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	45	1	4ABTT002.02	SML-Bettys Creek near Bettys Creek Driver	N37 07.137'	W79 40.926'	MONETA	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	46	1	4ABWR000.88	SML-Blackwater River near Scruggs # 7	N37 02.040'	W79 36.520'	SMITH MT. DAM	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	47	1	4ABWR012.77	SML-Blackwater River near 4-H camp	N37 02.144'	W79 43.196'	MONETA	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	48	1	4AGIL004.46	SML-Gills Creek near Rt. 668	N37 04.786'	W79 42.123'	MONETA	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	49	1	4AIND002.44	SML-Indian Creek near Rt. 677	N37 08.731'	W79 44.097'	GOODVIEW	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	50	1	4ALUL002.03	SML-Little Bull Run near Rt. 1122	N37 00.012'	W79 37.055'	SMITH MT. DAM	PCBs - VEERF Project VDH Request	VDH Request
W-L07R	51	1	4ALVL003.26	SML-Lynville Creek near Rt. 676	N37 11.754'	W79 46.968'	HARDY	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	52	1	4AROA166.65	SML near Smith Mountain Lake near State Park	N37 04.080'	W79 36.550'	SMITH MT. DAM	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	53	1	4AROA175.63	SML near Hales Ford bridge	N37 08.733'	W79 40.017'	GOODVIEW	PCBs - VEERF Project VDH Request	VDH Request
W-L04R	54	1	4AROA190.99	Roanoke River-SML near Falling Creek	N37 13.992'	W79 46.919'	HARDY	PCBs - VEERF Project VDH Request	VDH Request

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W-L04R	55	1	4AROA193.73	Roanoke River downstream of Back Creek	N37 13.219'	W79 48.641'	HARDY	PCBs - VEERF Project VDH Request	VDH Request
W-L04R	56	1	4AROA198.75	Roanoke River upstream Back Creek	N37 15.059'	W79 51.805'	HARDY	PCBs - VEERF Project VDH Request	VDH Request
VAW-L04	57	1	4AROA202.20	Roanoke River at 13th Street bridge	N37 15.814	W79 54.925	ROANOKE	PCBs USF&W Special Request Roanoke Logperch Study	USF&W Special Request
VAW-L03	58	1	4AROA217.23	Roanoke River near Green Hill Park	N37 16.532	W80° 06.848'	SALEM	PCBs USF&W Special Request Roanoke Logperch Study	USF&W Special Request
W-L12L	59	1	4ASBA001.54	SML-Stony Creek near Rt. 842	N37 10.379'	W79 41.418'	GOODVIEW	PCBs - VEERF Project VDH Request	VDH Request
W-L12L	60	1	4HFW001.72	SML-Hales Creek	N37 09.809'	W79 39.746'	GOODVIEW	PCBs - VEERF Project VDH Request	VDH Request
W-L05R	61	1	4ATKR000.17	Tinker Creek near Mouth	N37 16.101'	W79 54.258'	ROANOKE	PCBs USF&W Special Request Roanoke Logperch Study	USF&W Special Request

Blackwater River VEERF Stations

T-K36R	62	1	5ABLW000.65	Blackwater River near state line	N36 33.150	W76 54.953'	RIVERDALE	Hg - VEERF Project VDH Request	VDH Request
T-K36R	63	1	5ABLW007.39	Blackwater River off Rt. 189	N36 37.128	W76 54.617'	RIVERDALE	Hg - VEERF Project VDH Request	VDH Request
T-K36R	64	1	5ABLW013.90	Blackwater River near Rt. 258	N36 40.833'	W76 55.093'	FRANKLIN	Hg - VEERF Project VDH Request	VDH Request
T-K36R	65	1	5ABLW022.84	Blackwater River near Rt. 611	N36 44.004'	W76 55.003'	FRANKLIN	Hg - VEERF Project VDH Request	VDH Request, 2002 Historical Data
T-K33R	66	1	5ABLW028.02	Blackwater River near Rt. 619	N36 46.290'	W76 53.370'	SEDLEY	Hg - VEERF Project VDH Request	VDH Request
T-K33R	67	1	5ABLW031.90	Blackwater River near Rt. 603	N36 48.224'	W76 51.754'	ZUNI	Hg - VEERF Project VDH Request	VDH Request
T-K33R	68	1	5ABLW040.22	Blackwater River near Rt. 460	N36 52.098'	W76 50.095'	ZUNI	Hg - VEERF Project VDH Request	VDH Request
T-K33R	69	1	5ABLW044.64	Blackwater River near Rt. 620	N36 54.368'	W76 49.022'	RAYNOR	Hg - VEERF Project VDH Request	VDH Request
T-K33R	70	1	5ABLW053.53	Blackwater River near Rt. 621	N36 58.409'	W76 51.159'	RAYNOR	Hg - VEERF Project VDH Request	VDH Request

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WBID	Site #	Priority	Rivermile	Station	Latitude	Longitude	Topo Quad Name	Problem	Reference
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Dismal Swamp VEERF Stations

T-K39R	71	1	5B-GDS-71	Dismal Swamp Washington Ditch	N36 39.181'	W76 33.613'	SUFFOLK	Hg - VEERF Project VDH Request	VDH Request
T-K39R	72	1	5B-GDS-72	Dismal Swamp East Canal	N36 46.121'	W76 27.817'	BOWERS HILL	Hg - VEERF Project VDH Request	VDH Request
T-K39R	73	1	5B-GDS-73	Dismal Swamp Jericho Ditch	N36 42.962'	W76 31.717'	SUFFOLK	Hg - VEERF Project VDH Request	VDH Request
T-K39R	74	1	5B-GDS-74	Dismal Swamp near Rt. 17 & Rt. 104	N36 42.654'	W76 21.187'	DEEP CREEK	Hg - VEERF Project VDH Request	VDH Request
T-K39R	75	1	5B-GDS-75	Dismal Swamp Portsmouth Ditch	N36° 45.118	W76° 22.408'	NORFOLK SOUTH	Hg - VEERF Project VDH Request	VDH Request
T-K39R	76	1	5B-GDS-76 LAKE	Dismal Swamp Lake Drummond-1	N36 36.943'	W76 27.706'	LAKE DRUMMOND	Hg - VEERF Project VDH Request	VDH Request
T-K39R	77	1	5B-GDS-77 LAKE	Dismal Swamp Lake Drummond-2	N36 35.326'	W76 29.116'	LAKE DRUMMOND	Hg - VEERF Project VDH Request	VDH Request
T-K39R	78	1	5BXCK000.00	Dismal Swamp Feeder Ditch near Arbuckle Landing	N36 35.509'	W76 23.078'	LAKE DRUMMOND	Hg - VEERF Project VDH Request	VDH Request

Knox Creek VEERF Stations

S-Q03R	79	1	6AKOX008.14	Knox Creek near State Line	N37 28.239'	W82 03.750'	HURLEY	PCBs - VEERF Project VDH Request	VDH Request
S-Q03R	80	1	6AKOX010.98	Knox Creek near Pawpaw Creek	N37 26.845'	W82 03.489'	HURLEY	PCBs - VEERF Project VDH Request	VDH Request
S-Q03R	81	1	6AKOX012.06	Knox Creek near Race Fork	N37 26.298'	W82 02.734'	HURLEY	PCBs - VEERF Project VDH Request	VDH Request
S-Q03R	82	1	6AKOX012.86	Knox Creek near Guess Fork	N37 26.091'	W82 01.986'	HURLEY	PCBs - VEERF Project VDH Request	VDH Request
S-Q03R	83	1	6AKOX014.37	Knox Creek near Lester Fork	N37 25.192'	W82 01.263'	HURLEY	PCBs - VEERF Project VDH Request	VDH Request
S-Q03R	84	1	6AKOX017.97	Knox Creek near Right Fork	N37 23.122'	W81 59.979'	PANTHER	PCBs - VEERF Project VDH Request	VDH Request
S-Q03R	85	1	6AKOX020.36	Knox Creek near Hoover Camp Branch	N37 22.993'	W81 57.924'	PANTHER	PCBs - VEERF Project VDH Request	VDH Request

Table 3 2004 Fish Tissue and Sediment Monitoring Stations

WBID	Site #	Priority	Rivermile	Station	Latitude	Longitude	Topo Quad Name	Problem	Reference
S-Q03R	86	1	6AKOX023.25	Knox Creek near Big Butt Branch	N37 21.372'	W81 56.120'	PATTERSON	PCBs - VEERF Project VDH Request	VDH Request

Beaver Creek VEERF Stations

S-O07R	87	1	6CBEV015.27	Beaver Creek near State Line	N36 35.706'	W82 11.118'	BRISTOL TENN	PCBs - VEERF Project VDH Request	2002 Historical Data, VDH Request
S-O07R	88	1	6CBEV016.47	Beaver Creek near Kington	N36 36.066'	W82 10.190'	BRISTOL TENN	PCBs - VEERF Project VDH Request	VDH Request
S-O07R	89	1	6CBEV017.18	Beaver Creek near Elm Street	N36 36.527'	W82 10.241'	BRISTOL TENN	PCBs - VEERF Project VDH Request	VDH Request
S-O07R	90	1	6CBEV018.00	Beaver Creek near McChesney D River	N36 36.984'	W82 09.727'	BRISTOL TENN	PCBs - VEERF Project VDH Request	VDH Request
S-O07R	91	1	6CBEV020.66	Beaver Creek near Goose Creek	N36 37.919'	W82 07.971'	WALLACE	PCBs - VEERF Project VDH Request	VDH Request
S-O07R	92	1	6CBEV021.50	Beaver Creek near Clear Creek Road	N36 38.034'	W82 07.226'	WYNDALE	PCBs - VEERF Project VDH Request	VDH Request
S-O07R	93	1	6CBEV022.13	Beaver Creek near Beaver Creek Lake	N36 38.380'	W82 06.727'	WYNDALE	PCBs - VEERF Project VDH Request	VDH Request
S-O07R	94	1	6CBEV023.69	Beaver Creek near Rt. 625	N36 39.462'	W82 06.084'	WYNDALE	PCBs - VEERF Project VDH Request	VDH Request
S-O07R	95	1	6CBEV028.15	Beaver Creek near Rt. 804	N36 41.935'	W82 03.814'	WYNDALE	PCBs - VEERF Project VDH Request	VDH Request

Dragon Swamp VEERF Stations

P-C02E	96	1	7-DRN001.43	Dragon Swamp near Zion Branch	N37 34.742'	W76 35.253'	SALUDA	Hg - VEERF Project VDH Request	VDH Request
P-C02E	97	1	7-DRN003.40	Dragon Swamp near Rt. 17	N37 35.148'	W76 36.202'	SALUDA	Hg - VEERF Project VDH Request	VDH Request
P-C02R	98	1	7-DRN010.48	Dragon Swamp near Rt. 603	N37 38.019'	W76 41.758'	SAMOS	Hg - VEERF Project VDH Request	VDH Request
P-C02R	99	1	7-DRN015.09	Dragon Swamp near Rt. 602	N37 41.105'	W76 43.606'	SAMOS	Hg - VEERF Project VDH Request	VDH Request
P-C02R	100	1	7-DRN023.41	Dragon Swamp near Rt. 604	N37 46.306'	W76 47.399'	DUNNSVILLE	Hg - VEERF Project VDH Request	VDH Request
P-C03E	101	1	7-PNK017.47	Piankatank River	N37 33.568'	W76 32.279'	SALUDA	Hg - VEERF Project VDH Request	VDH Request
P-C03E	102	1	7-PNK020.42	Piankatank River near Rt. 644	N37 33.722'	W76 33.698'	SALUDA	Hg - VEERF Project VDH Request	VDH Request

Table 3 2004 Fish Tissue and Sediment Monitoring Stations

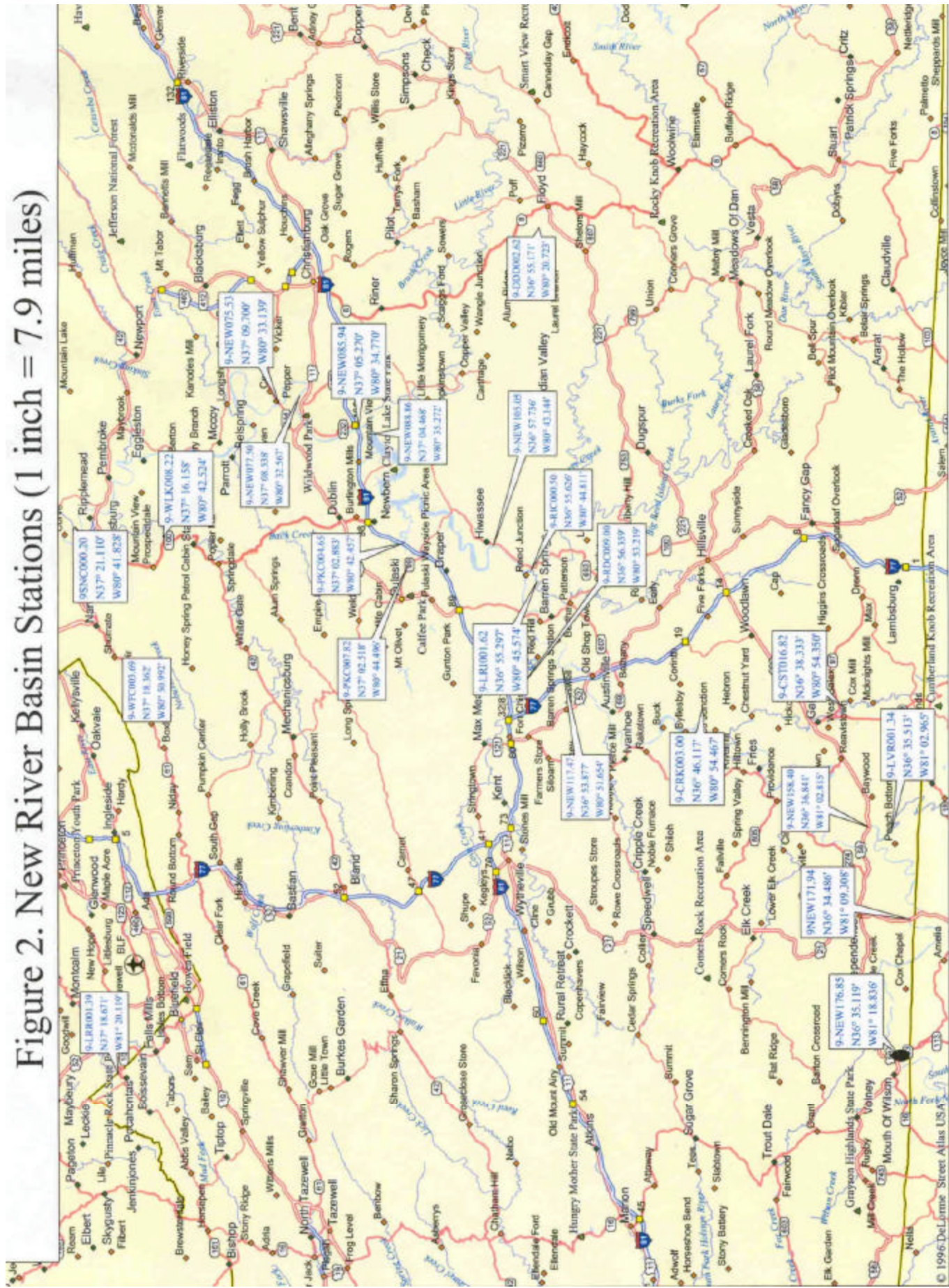
WBID	Site #	Priority	Rivermile	Station	Latitude	Longitude	Topo Quad Name	Problem	Reference
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James River Basin - Regional Office Request and Kepone Monitoring Stations

P-G03E	103	1	2-XGK000.01	Unnamed Trib near Mouth of Appomattox Honey Well Lower	N37 19.783'	W77 16.863'	HOPEWELL	PRO Request (Biphenyl & Diphenyl Ether)	Regional Office Request
P-G03E	104	1	2-XGK000.30	Unnamed Trib near Mouth of Appomattox Honey Well Upper	N37 20.032'	W77 16.932'	HOPEWELL	PRO Request (Biphenyl & Diphenyl Ether)	Regional Office Request
P-H39R	105	1	2-JMS109.98	James River near I-95 bridge Kepone Zone K	N37 31.671'	W77 25.859'	RICHMOND	Kepone Monitoring Station	Historical Data
P-G03E	106	1	2-JMS074.44	James River near Rt. 156 bridge Kepone Zone D	N37 19.150'	W77 13.460'	WESTOVER	Kepone Monitoring Station	Historical Data
P-G08E	107	1	2-CHK002.17	Chickahominy River near Rt. 5 bridge Kepone Zone H	N37 15.820'	W76 52.640'	BRANDON	Kepone Monitoring Station	Historical Data
P-J15E	108	1	2-APP001.42	Mouth of Appomattox River	N37 18.684'	W77 17.687'	HOPEWELL	Kepone Monitoring Station	Historical Data

[illegible]

Figure 2. New River Basin Stations (1 inch = 7.9 miles)



4AROA217.23
N37° 16.532'
W82° 06.848'
USF&W STUDY

4AROA202.20
N37° 15.814'
W79° 54.925'
USF&W STUDY

4ATKR000.17
N37° 16.101'
E78° 54.258'
USF&W STUDY

4AROA193.73
N37° 13.219'
W79° 48.641'

4AROA190.99
N37° 13.992'
W79° 46.919'

4ABDA002.27
N37° 12.848'
W79° 44.980'

4ALVL003.26
N37° 11.754'
W79° 46.968'

4ABND002.44
N37° 08.731'
W79° 44.097'

4ABTT002.02
N37° 07.137'
W79° 40.926'

4ABKY002.09
N37° 06.211'
W79° 40.789'

4AGIL004.46
N37° 04.786'
W79° 42.123'

4ABWB002.77
N37° 02.144'
W79° 43.196'

4ABSA003.77
N36° 59.778'
W79° 39.481'

4ASBA001.54
N37° 10.379'
W79° 41.418'

4AIFW001.72
N37° 09.809'
W79° 39.766'

4AROA175.63
N37° 06.733'
W79° 40.017'

4AROA166.65
N37° 04.080'
W79° 36.550'

4ABWR000.88
N37° 02.040'
W79° 36.520'

4A1LE002.63
N37° 00.612'
W79° 37.055'

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Figure 5. Great Dismal Swamp VEERF(1 inch = 2.8 miles)

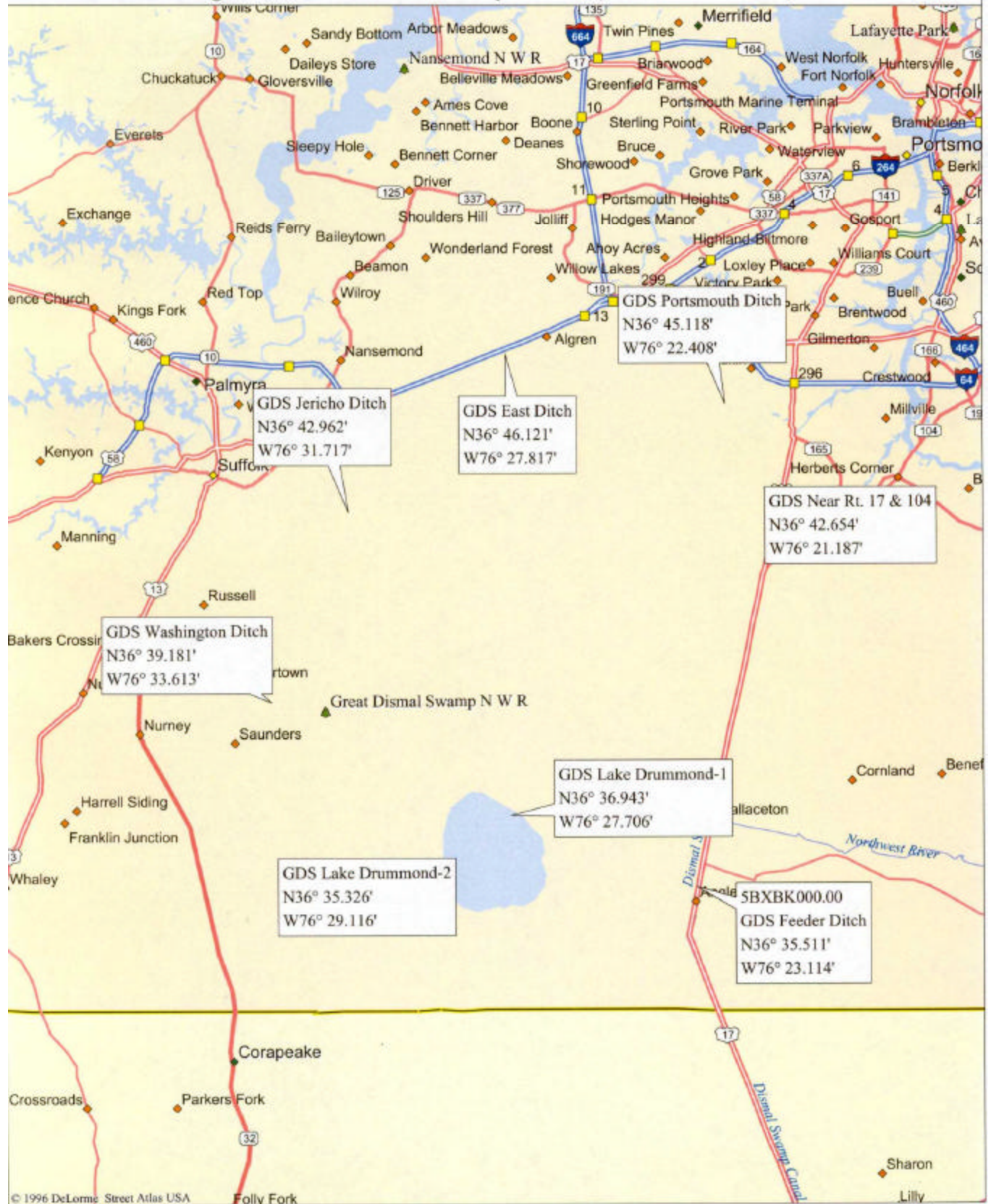


Figure 6. Knox Creek VEERF Stations (1 inch = 2 miles)

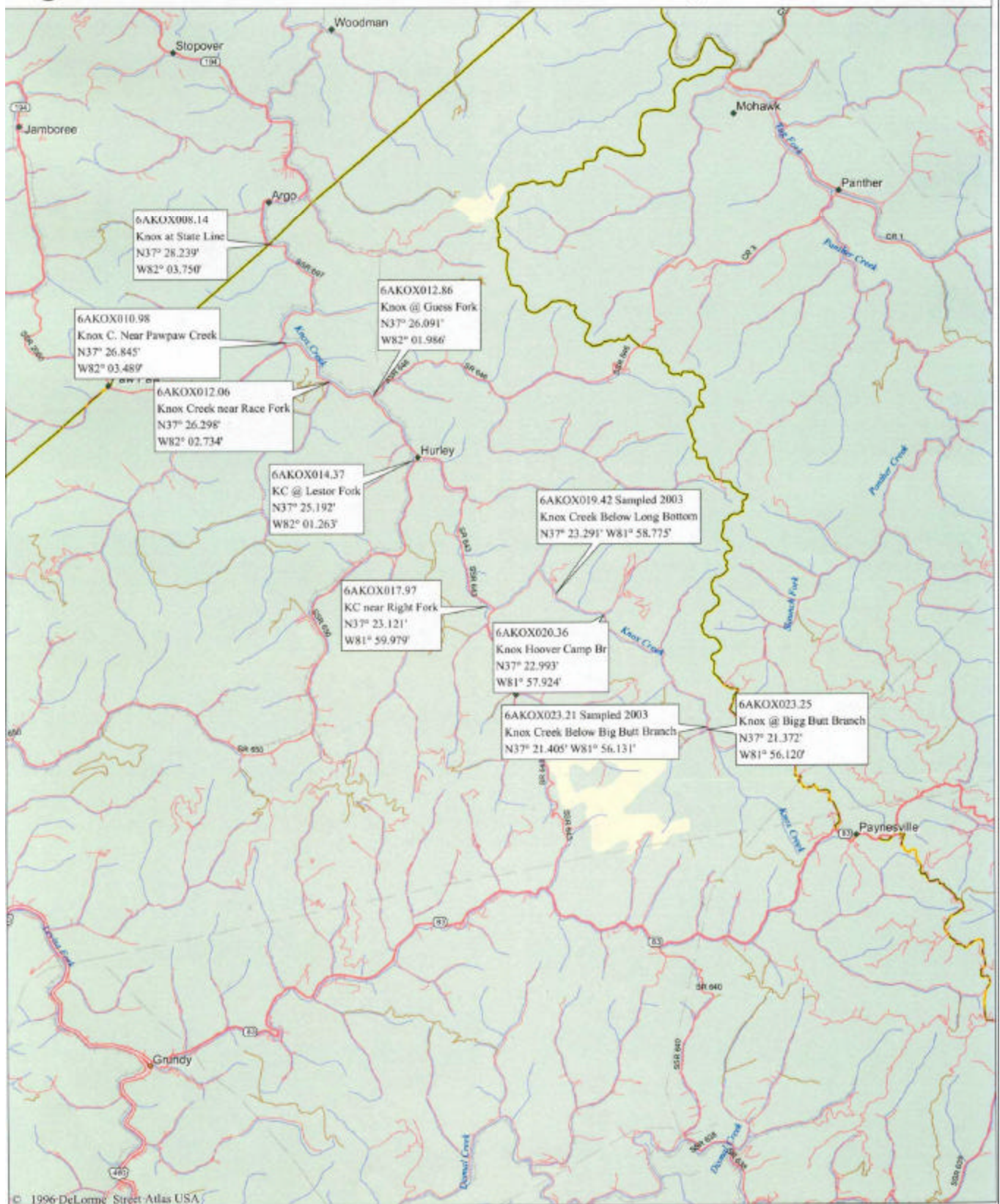
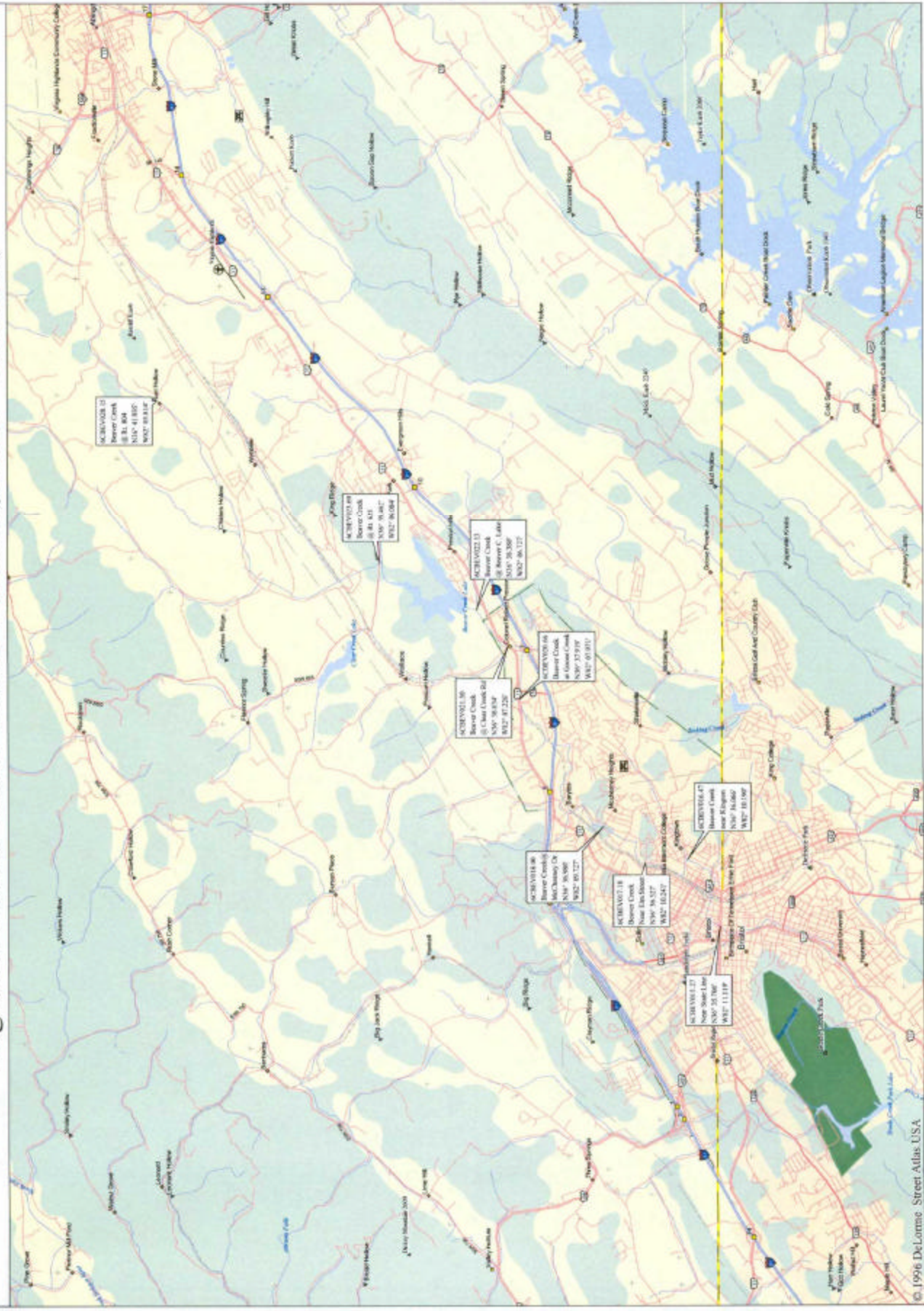


Figure 7. Beaver Creek VEERF Stations (1 inch = 1.6 miles)



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